## Section 1.0
## INTRODUCTION

Triad Engineering Incorporated (Triad), in association with HydroQual, Inc. (HydroQual) and T N & Associates, Inc. (TN), was retained by the Indiana Department of Environmental Management's (IDEM's) Office of Water Quality (OWQ) to provide technical services related to *Escherichia coli (E. coli)* Total Maximum Daily Load (TMDL) development and implementation planning for the Trail Creek watershed.

Pursuant to Section 303(d) of the federal Clean Water Act and the U.S. Environmental Protection Agency (USEPA) Water Quality Planning and Management regulations (40 CFR Part 130), states are required to identify waterbodies that do not meet established water quality standards (USEPA, 2001). Watersheds draining to the Great Lakes must also comply with the Great Lakes Initiative (USEPA, 1995), which is an agreement between the USEPA and the Great Lakes states for a comprehensive plan (*Final Water Quality Guidance for the Great Lakes System*) to restore the health of the Great Lakes by setting water quality standards for 29 pollutants, including bioaccumulative chemicals of concern, and prohibiting the use of mixing zones for these toxic chemicals. TMDLs must be developed for the Trail Creek watershed and best management practices (BMPs) and other actions implemented in order to bring the waterbodies into compliance. At that time, delisting procedures can be initiated.

A TMDL is the total pollutant load from point and nonpoint sources that a water body can assimilate while maintaining its designated use (water quality standards). It also includes an appropriate margin of safety and is expressed below:

$$TMDL = \sum WLA + \sum LA + MOS$$

where: WLA – Wasteload allocation for point sources;
LA – Load allocation for nonpoint sources; and
MOS – Margin of safety (implicit or explicit).

The focus of the TMDL is the reduction of pollutant inputs to a level (or "load") that fully supports the designated use of a given water body. The mechanisms (implementation plan) used to address water quality problems after the TMDL is developed can include a combination of BMPs and/or effluent limits and monitoring required through NPDES permits.

Trail Creek has been identified through the 303 (d) listing process as being impaired for the parameter of concern *E. coli.* As a result, the IDEM is required to establish a TMDL generating process and implementation procedure that follows the federal guidelines and regulations.